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SHORE EROSION/MITIGATION PLANNING

IN WISCONSIN:

Compliance with Section 305(b)(9)
Federal Requirements

by

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Chapter 305(b)(9)

SHORE EROSION/MITIGATION PLANNING PROCESS

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PREFACE

In Section 305(b)(9), Coastal Zone Management Act Amendments of 1976, Congress issued the following directive:

"The management program for each coastal state shall include ... a planning process for (A) assessing the effects of shoreline erosion (however caused), and (B) studying and evaluating ways to control, or lessen the impact of, such erosion, and to restore areas adversely affected by such erosion."

Five specific guidelines accompany the Section 305(b)(9) mandate. They identify those elements which must be included in the shoreline erosion/mitigation planning process of each state seeking coastal funds. They are listed below:

- "1. A method for assessing the effects of shoreline erosion;
 2. Articulation of State policies pertaining to erosion, including policies regarding preferences for non-structural, structural and/or no controls;
 3. A method for designation of areas for erosion control, mitigation and/or restoration as areas of particular concern or areas for preservation and restoration, if appropriate;
 4. Procedures for managing the effects of erosion, including non-structural procedures; and
 5. An identification of legal authorities, funding programs and other techniques that can be used to meet management needs."
- (923.26a Federal Register, Vol. 43, No. 41)

This paper documents Wisconsin's compliance with the federal requirements cited above, and its five accompanying guidelines. The text outlines the shore erosion/mitigation planning process Wisconsin has developed over the past three years and highlights those particular activities, whether completed, ongoing, or scheduled, which address the five specific guidelines. Points of compliance with these guidelines are identified throughout the paper. They are summarized on page 176 in tabular form,

WISCONSIN'S SHORE EROSION/MITIGATION PLANNING PROCESS

Introduction

Shore erosion has long been recognized as a natural hazard endangering coastal resources, structures, and land uses in Wisconsin. Shore erosion agents attack the coastal bluffs and beaches of Lakes Michigan and Superior on a year-round basis. Yet, it is during heavy storms and high-water periods that the effect of erosive processes is most acute, and public awareness highest.

No greater threat has been imposed upon Wisconsin's shoreline, in recent decades, than the particularly severe erosion which occurred during the 1950-52 and 1972-74 high-water periods. Over the course of each period, shore properties suffered damage and loss estimated in the millions of dollars;¹ wildlife habitats, scientific areas, and recreational opportunities were also adversely affected. In recognition of persisting hazard conditions, many local governments and coastal property owners constructed shore protection structures of various types. Some devices proved effective, but most did not. As a result, lakeshore residents and public officials grew frustrated in their attempts to reduce shore erosion damages. At the same time, they felt increasing pressures to develop their coastal environment more extensively. A need to assess the issues of shore erosion in the context of overall coastal land use was becoming apparent.

By 1974, shore erosion was the #1 concern of Wisconsin shore residents.² In view of its commitment to fostering compatible shoreland activities, Wisconsin's Coastal Management Program became the appropriate coordinator of shore erosion/mitigation planning efforts in the state. Since 1975, the Program has been building "in-house" state and local capabilities to address erosion-related problems. Such a focus has maintained Wisconsin's tradition of inter-governmental cooperation. It has also guided the evolution of a shore erosion/mitigation planning process.

The Planning Process, In Brief

Formulation of the Study Plan illustrated in Figure 1 represented Wisconsin's first major step in addressing the problems posed by its eroding shoreline. Shore erosion planning in the state was initially directed towards the development of a substantial coastal data base and a subsequent set of options for reducing shore damages in a manner compatible with existing land uses and environmental conditions. Information-gathering activities were coordinated by the Shore Erosion Policy Group (now, Shore Erosion Advisory Committee), a technical committee created to guide Wisconsin's overall planning efforts.³

The question of how to translate data into action quickly arose, amongst coastal researchers, advisors, and citizens alike. With it came a fuller recognition of the complexity of the shore erosion issue. From it evolved a more comprehensive planning process.

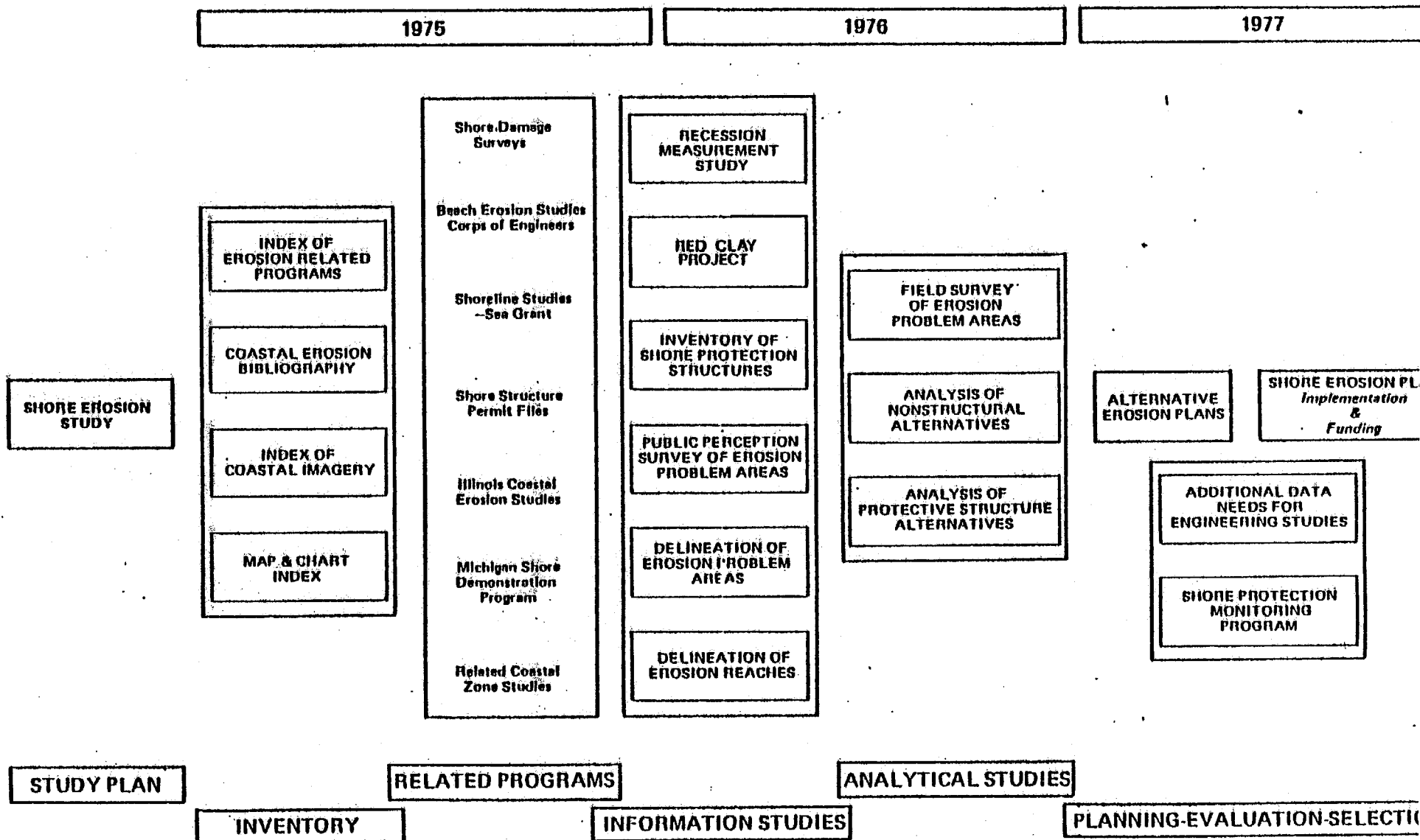


Figure 1. Wisconsin Shore Erosion Study Plan

Source: Shore Erosion - A Study Plan.

Wisconsin has broadened its shore erosion planning focus to include five principal components. In Table 1, these components have been stated in terms of needs -- that is, what has Wisconsin needed to know and do in order to move towards the goal of shore damage reduction? Such needs are being addressed in a five-stage planning process, also summarized in Table 1.

By 1974, it was well-recognized that erosion of bluffs and beaches was occurring more rapidly in some areas along Wisconsin's coast than others. It had also become evident that where land use was most intensive, shore damages were highest. But the shore erosion-related information available in the State was insufficient as a basis for identifying appropriate hazard mitigation measures.⁴ Wisconsin needed to know more about the shore erosion process itself, more about its vulnerable shoreline, and more about the range of feasible solutions which might be successfully applied to problem areas.

Initial planning emphasis, thus, was on (1) gathering shoreline data and (2) investigating those structural and nonstructural measures which could reduce the damaging effects of erosive forces upon shore properties or facilities. Although such information regarding shore erosion problems and potential solutions is proving an invaluable resource, Wisconsin state and local decision-makers have needed additional support in order to select, establish, and maintain effective shore damage reduction programs. Subsequently, attention has turned to (3) developing a framework for action, whether it be collectively or individually undertaken. This framework is based upon the translation of existing state and local shore erosion-related policies into guidelines and the application of these guidelines to a generalized planning process for shore damage reduction programs. Shore erosion/mitigation planning efforts are also currently focused on expanding the existing body of coastal data and (4) examining the array of available technical and financial assistance sources.

Future planning emphasis is directed towards (5) coordinating public and private sector shore damage reduction activities and refining them, such that they enhance the overall future of Wisconsin's coastal area. To this end, the planning process will be strengthened by the ongoing assessment of shoreline conditions, the articulation and implementation of further state and local policies -- of a regulatory and incentive nature -- and the clarification of agency and government roles and responsibilities. Wisconsin's need to make its shore damage mitigation efforts as efficient and effective as possible will therefore be addressed.

Table 1. Wisconsin Moves Toward Shore Damage Reduction: 1975 - 1978 and Beyond.

State and Local Needs	A Planning Process to Address Needs	1975	1976	1977	1978	Major Planning Activities
1. Need to evaluate extent and nature of shore erosion in Wisconsin's coastal area.	A. Shoreline data gathering and analysis.	X	X	X	X	1. Geotechnical studies. 2. Shoreline damage survey. 3. Priority ranking of critical reaches. 4. Delineation of erosion hazard districts.
2. Need to know what can be done to reduce shore damage.	B. Investigation of Structural and Non structural Alternatives.		X	X	X	1. Evaluation of structural solutions. 2. Evaluation of nonstructural solutions. 3. Evaluation of compensation avenues.
3. Need to know how to select damage reduction option(s), then how to proceed.	C. Development of a Framework for Action.			X	X	1. Analysis of state and local erosion-related policies. 2. Translation of policies into guidelines and implementation strategies. 3. Development of decision making process.
4. Need to tap available sources of assistance.	D. Assessment of Technical and Financial Assistance Sources.			X	X	1. Identification of existing aid programs. 2. Compensation study.
5. Need to make shore damage reduction programs as effective as possible.	E. Coordination of state and local shore damage reduction policies and programs.				X	1. Clarified agency and government roles and responsibilities. 2. Coastal Management Council leadership. 3. Great Lakes shore erosion information and assistance program.

The Planning Process, In Detail: Its Components and Its Compliance

Wisconsin's shore erosion/mitigation planning process can be further characterized by the research, analytical, and administrative activities of its five principal components (A-E). The following pages discuss these activities, list the erosion-related documents produced thus far (Appendices A-E), and highlight the compliance of such efforts with the federal requirements (FR#1-#5).

A. Shoreline data gathering and analysis.

During 1975 and 1976, shoreline surveys of various types were undertaken. Inventories of natural areas, fish and wildlife habitats, and historic sites provided information regarding some valuable resources of Wisconsin's coastal area. Patterns of shoreland use, ownership, and zoning were also identified. Aerial photographs of Lake Michigan and Lake Superior shores were acquired from several regional, state, and federal agencies, and from actual flights along the Wisconsin coast. The photos enabled coastal researchers to observe the condition of existing shore protection structures, and to locate them on shoreline base maps. They served as well to identify those sites (1) where slumps, slides, and seepages gave evidence of the erosive effects of gravity, winds, and waves upon coastal bluffs, and (2) where littoral drift processes had either carved away or supplemented beach areas, often adjacent to shore protection structures. The imagery files also provided the data base needed to undertake a shore recession measurement study. Short term rates for the Lake Michigan shore were calculated and then mapped along with older, long-term measurements.⁵

Estimations of bluff heights and beach widths were made from U.S. topographical maps, and the information was added to the shoreline base maps. Perceptions of coastal residents regarding the shore erosion issue were obtained during three regional workshops. Citizens identified the areas of severe erosion with which they were familiar and thereby contributed to the ultimate determination of which shores were eroding at a critical rate. In addition, pilot study findings of a larger Great Lakes Shoreline Damage Survey revealed the extent and location of land and property losses which occurred during 1972-74 in three of Wisconsin's coastal counties.⁶

The acquisition and analysis of basic shoreline data began with the identification and designation of reaches along the Great Lakes shoreline. Figures 2a and 2b locate these reaches along Lakes Michigan and Superior respectively. In the case of Lake Michigan, erosion prone reaches were ranked according to their overall hazards. Figure 2a lists these reaches with priorities from the most to the least severe. This listing provided the basis for an extensive geotechnical study on the Lake Michigan coastline during the summer of 1976. Field investigations were most thorough where shore erosion posed a formidable threat to coastal residences, buildings and public facilities. Detailed descriptions of 126 miles of coastline were made.

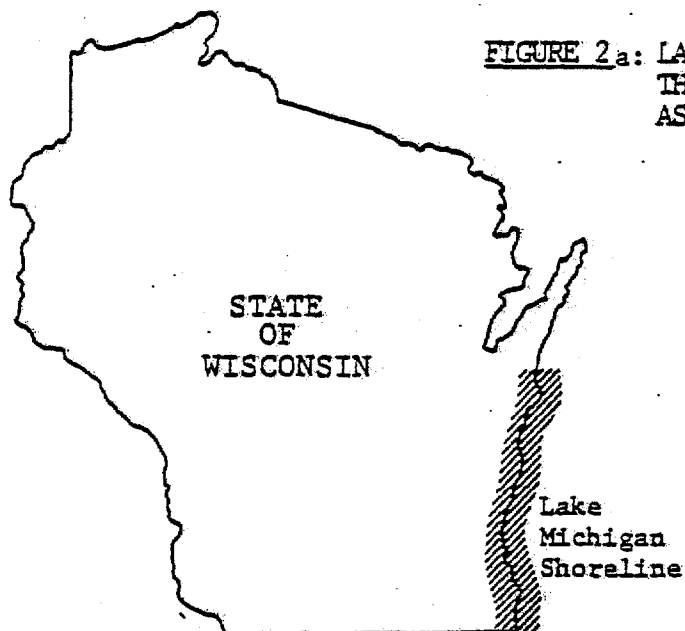
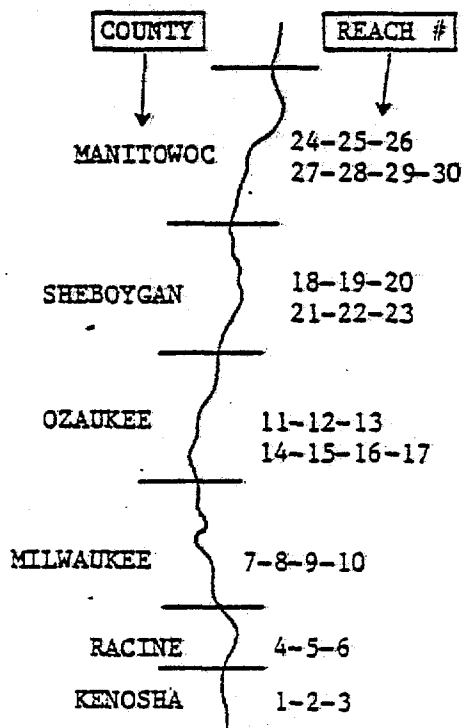


FIGURE 2a: LAKE MICHIGAN REACHES:
THEIR LOCATION AND THEIR PRIORITY
AS EROSION PROBLEM AREAS



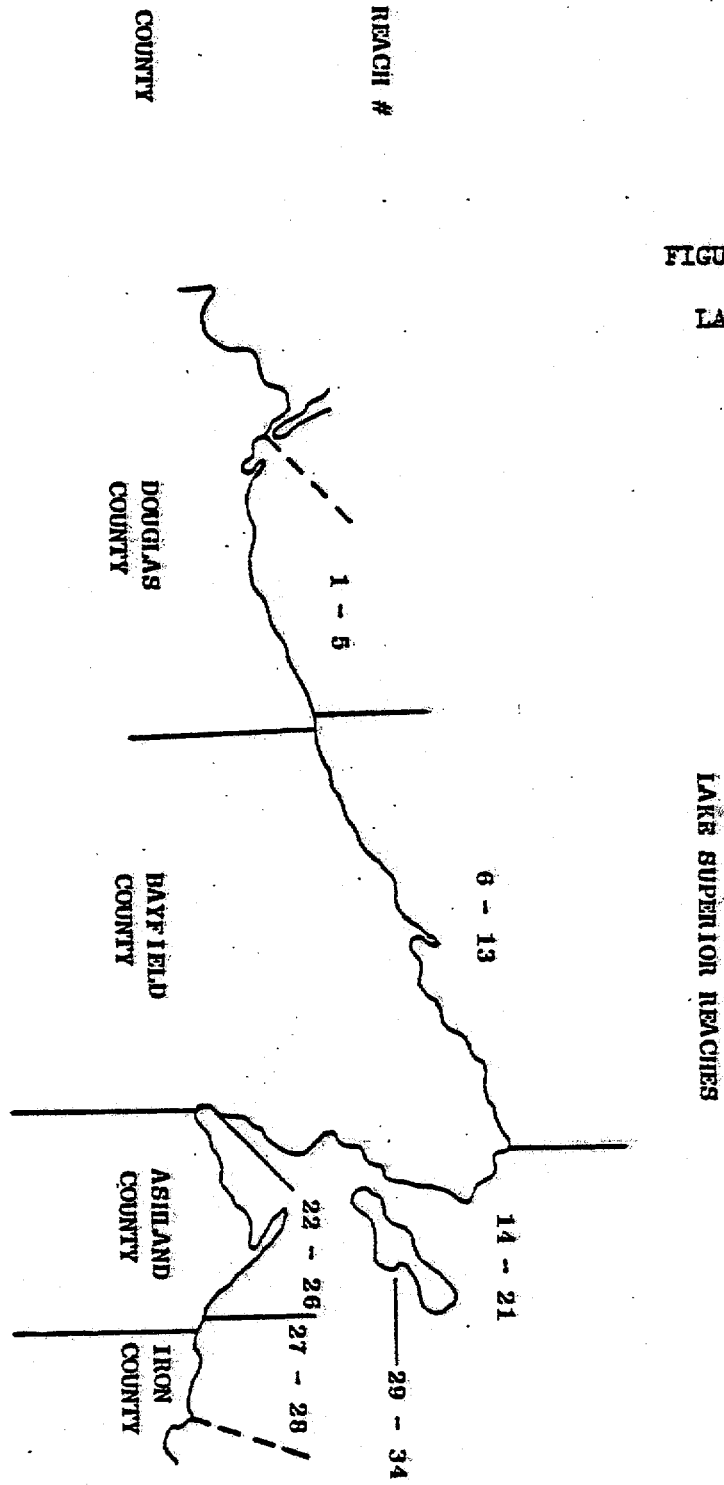
LIST OF LAKE MICHIGAN
REACHES BY PRIORITY

Priority	Reach	Grid Miles N-S Cumulative Totals
1	1	4.5
2	12	11.1
3	6	15.7
4	7	18.5
5	11	21.1
6	10	27.7
7	13	32.9
8	188	37.9
9	3	43.9
10	5	46.9
11	8	52.7
12	16	55.7
13	17	59.2
14	14	60.2
15	15	63.7
16	27	67.2
17	24	70.7
18	18A	72.7
19	19	74.9
20	25	80.8
21	29	83.1
22	22	85.5
23	23	90.0
24	18C	93.0
25	21	96.5
26	26	99.5
27	30	104.1
28	2	107.1
29	4	110.4
30	28	116.0
31	20	119.0
32	9	126.0

Source: Shore Erosion Study Technical Report

FIGURE 2b:

LAKE SUPERIOR REACHES



The effects of erosion upon unprotected, somewhat protected and well-armored shores were noted. Availability of such data led to the development of a shore protection structure inventory. It also supported subsequent planning efforts by Wisconsin to identify feasible structural and non-structural solutions which might effectively be applied to its erodible shores. It has suggested new avenues for coastal conditions at selected sites, the need to make similar geotechnical investigations of Lake Superior's shore and the need to delineate erosion hazard areas and specify their appropriate use(s).

In light of these findings, a "Geotechnical study for the Lake Superior shoreline" was given a high priority and ultimately funded under a Section 306 grant. By January 1979, both Lakes Michigan and Superior will have comparable geotechnical information available. The WCMP will follow-up and coordinate activities on the other two needs in the next two years.

On the basis of its shoreline data gathering activities — those completed, ongoing, and planned — Wisconsin has fully complied with Federal Requirement #1, that "...a method for assessing the effects of shoreline erosion..." be developed. During its initial planning period, Wisconsin acquired, organized, and mapped much of the shoreline data necessary to evaluate the major effects of shore erosion upon its Great Lakes coast. Clearly, land is being lost at a variable rate; buildings, public utilities, and recreational facilities are endangered; and natural areas and habitats are threatened.

The State has also been assembling its shore property damage estimates, its shore protection structure evaluations, its shoreline recession measurements, and its bluff stability calculations in order to clarify the cause-and-effect relationships contained in the shore erosion process. Although land losses during major storm attacks have proven the most costly of shore erosion effects, Wisconsin's attention to the shore erosion issue remains comprehensive in scope; that is, all aspects of the shore erosion process and all effects are being considered. Extensive property and structure damage during severe coastal storms represent only one form of shore erosion. Bluff slides and slumps, and gradual composition changes and recession of coastal bluffs and beaches are associated with the more cyclic and year-round types of erosion. In addition, the erosive effects of lake level regulation, shore armorment placement, and upland management practices are becoming distinguished.

As Wisconsin pieces together the puzzle of its coastal erosion history and current situation, the benefits of updating information and elaborating upon methodology in the future have become apparent. Yet, as indicated above, the recent shoreline research has already proven useful in several specific instances. More generally, it has heightened Wisconsin's own understanding of the nature and extent of its shore erosion problem. It has also provided a benchmark from which the state and local governments can establish procedures for obtaining shoreline data on an ongoing basis. Finally, the question of how Wisconsin's shore erosion-related policies and programs might be strengthened has been raised — a direct result of the new, often disturbing, coastal research findings.

Appendix A: (Asterisk (*) denotes project received funding support from the Wisconsin Coastal Management Program.)

- * Coastal Water Quality. 1975
- * Inventory of Coastal Imagery. 1975
- * An Analysis of the International Great Lakes Levels Board Report on Regulation of Great Lakes Water Levels. 1976
 - Summary Report.
 - Hydrology.
 - Navigation.
 - Shore Property and Recreation.
 - Wetlands, Fisheries and Water Quality.
 - Institutions.
- * Fish and Wildlife Habitat. Great Lakes. 1976.
- * Great Lakes Shoreline Damage Survey: Brown, Douglas and Racine Counties, Wisconsin. Appendix II. 1976
- * Natural Area Inventory. Coastal Zone, Wisconsin. 1976.
- * Ordinary High Watermark Determinations on Wisconsin's Great Lakes. 1976.
- * Preliminary Historic Structures Survey. Wisconsin's Great Lakes Counties. 1976.
- * Shore Erosion - A Bibliography. 1976.
- * Shore Erosion - A Study Plan. 1976.
- * Delineating Great Lakes Shorelines. 1977.
- * "Shoreline Erosion and Bluff Stability Along Lake Michigan and Lake Superior Shorelines of Wisconsin," Shore Erosion Study Technical Report. 1977.
- * Technical Report Appendices. 1977.
- * Shoreland Use in Wisconsin. 1977.
- * Wisconsin Coastal Atlas. 1977.

B. Investigation of structural and nonstructural alternatives.

Independent shore protection efforts by coastal citizens and local governments often result in the haphazard application of controls to what research and field study have now revealed as a system of shore erosion causes and effects. The benefits of systematically, and cooperatively, undertaking shore damage reduction activities have become apparent. In order to foster such coordination, however, Wisconsin first needed to evaluate the set of alternative solutions. It began to identify those options which might alleviate the erosion hazard conditions along the shoreline. Specifically, it investigated the costs and effectiveness of structural protection and the legal and administrative provisions for nonstructural measures.

The range of structural solutions was examined by a Wisconsin engineering firm, together with coastal planners of the state. Initially, investigations focused upon the coastal processes and their interactions with current methods of beach accretion, shore armorment, and bluff stabilization. Analyses of existing shore protection works were performed at nine priority locations along the Wisconsin coast. The structural devices which had been applied to these nine erosion hazard situations were assessed for their condition and performance. Such site - specific studies provided valuable information regarding what shore protection structures were and weren't "working" under varied geomorphologic conditions.

The logical next step was to develop guidelines for the selection of structural designs. Again, nine sites -- considered representative of Wisconsin's major shoreline types -- were chosen for analysis. Temporary, intermediate, and long-term life solutions were developed for each site;⁷ costs of the various structural devices were calculated. Such efforts confirmed Wisconsin's experience, historically, that structural protection is a costly means of addressing the problems posed by shore erosion; they also demonstrated the variation in life effectiveness of the design alternatives.

Parallel to the study of shore protection structures was an examination of nonstructural options available to citizens and governments along Wisconsin's coastline. Vegetation and upland management practices gained consideration as viable alternatives to an exclusively structural armorment of the Great Lakes shore. Existing county land use controls were identified and assessed for their degree of influence over Great Lakes shore development pressures. Shoreland zoning regulations were found particularly applicable to the issue of reducing safety hazards and property damages along the coast. The value of an erosion hazard warning system was also identified. In addition, a study of erosion-related compensation sources examined the extent to which relocation of buildings away from eroding shores and public or private acquisition of coastal areas might represent feasible options.

A major highlight of the "alternatives" research discussed above is the distinction between remedial and preventive approaches to shore damage reduction. Structural procedures would typify the first strategy, while nonstructural solutions would characterize the second. These two perspectives are reflected, in Wisconsin, by different policies and practices. Their combined and coordinated thrust, however, holds promise of more effective shore erosion mitigation measures being undertaken by state and local units of government and by private citizens.

Wisconsin's attention to identifying and developing further "procedures for managing the effects of erosion including nonstructural procedures", is ongoing. The array of existing shore damage reduction alternatives has been studied at great length. Establishment of clear guidelines upon which to base selection of one or more solutions will be receiving extensive consideration over the next several months. Compliance with Federal Requirement #4 is certainly underway.

Appendix B:

- * Capabilities of County Land Regulation Programs in the Wisconsin Coastal Area. 1976.
- * Addressing Coastal Erosion Through Flood Plain Zoning -- Is It Feasible in Wisconsin? 1977. Unpublished.
- * Bluff Erosion Control Under Wisconsin Shoreland Zoning Provisions. 1977. Unpublished.
- * Great Lakes Shore Erosion Protection - A General Review with Case Studies. 1977.
- * Some Non-structural Alternatives for the Reduction of Shore Damage. 1977.
- * Feasibility of Compensation for Man-induced Shore Erosion. 1978.
 - Summary Report.
 - Legal and Administrative Options for Compensation.
 - Relation of Human Activities to Shore Erosion.
- * Great Lakes Shore Erosion Protection - Structural Design Examples. 1978.

C. Development of a framework for action.

While Wisconsin's shoreline conditions and options for site-specific shore damage reduction efforts undergo continued assessment, the question of how overall shore damage reduction can actually be achieved has become more pressing. With coastal data now more available and alternative solutions clarified, guidelines regarding program selection and implementation have become necessary.

The third component of Wisconsin's shore erosion/mitigation planning process is the development of a framework for action at both the state and local levels. Principles upon which the framework is based derive from interpretations not only of recent shoreline studies, but also existing shore erosion-related state and local policies and programs. Research findings have been discussed in the previous sections.

The state policies and authorities stated below reveal the state's ability to control activities which may cause, exacerbate or be damaged by shoreline erosion. Many of these techniques provide a method for state control along incorporated as well as unincorporated shoreline to reduce property loss, shoreline debris, degradation of water quality through increased sediment loading and degradation of the shore's aesthetic and active recreational value resulting from coastal erosion and flooding. Furthermore these state policies and standards provide the minimum criteria for county and local municipality action. With the increasing amount of technical data, each governmental actor is better able to apply these standards.

It is the state's policy to mitigate risks to public health and safety and risks of property damage in areas subject to natural hazards by:

- a. Providing that all development in areas subject to serious flooding will not materially alter the natural capacity of the lake or river so that the magnitude of floods will be intensified, or expose citizens to hazards or cause future public expenditures for flood disaster relief.
- b. Regulating earth moving, devegetation, and construction activities now reviewed by state agencies so as not to accelerate the rate of shoreline erosion or bluff recession. (Coastal Policy #3.0)

Counties, cities and villages shall adopt reasonable and effective flood plain ordinances for those parts of their jurisdiction subject to serious flood damage. These ordinances shall provide that no buildings be constructed in floodways and that inconsistent development be prohibited in flood plains. (Coastal Policy #3.1; Wis. Stats. Section 87.30 and Wis. Admin. Code NR 116)

State statutes require localities to adopt flood plain zoning ordinances, meeting state standards, for those parts of their jurisdictions where serious flood damage may occur. If localities do not adopt reasonable and effective ordinances, the DNR is required to adopt an ordinance for the jurisdiction. Also, the availability of federal flood insurance is tied to the existence of adequate local flood plain regulation.

The placement or maintenance of any structure, fill, or development in violation of a flood plain zoning ordinance is declared to be a public nuisance and may be enjoined or abated at suit of any municipality, the state, or any citizen of the state.

Solid waste disposal sites and facilities are prohibited within areas under the jurisdiction of flood plain zoning regulation, unless they are licensed by the DNR.

This activity is subject to the management program because of its potential for reduction of effective flood flow capacity that could cause increased damage to coastal resources during a flood.

Within unincorporated areas a setback of 75 ft. from the ordinary high water mark shall be required, unless an existing development pattern exists. (Coastal Policy #3.2; Wis. Stats. Sections 59.971 and 144.26, and Wis. Admin. Code NR 115)

Each county is required by state law to regulate the use of shorelands in unincorporated areas. DNR minimum standards require the ordinances to protect human health, aquatic life, and natural beauty and control land uses. If county ordinances are found to be inadequate, the DNR can adopt an ordinance for the county. (Note: All relevant coastal counties have DNR approved shoreland zoning ordinances.) Shoreland use is subject to management control because of potential impacts of various activities in these largely undeveloped areas on coastal water quality, fish spawning areas, fish and aquatic life and the natural beauty of the land and water resources. Further description of this law is found in the FEIS pages 184-186.

Solid waste disposal sites and facilities are prohibited in floodplains and within the jurisdiction of shoreland regulations, i.e. within 300 feet of navigable streams and 1000 feet of lakes, ponds, and flowages in unincorporated areas. (Coastal Policy #3.3; Wis. Stats. Section 144.045 and Wis. Admin. Code NR 115)

All new subdivision plats, buildings, structures, roads, sanitary or other facilities which are reviewed by state agencies and which are in existing and potential flood hazard areas shall be prevented from exposing citizens to unnecessary hazards or cause future public expenditures for flood disaster relief. (Coastal Policy #3.4; Governor's Executive Order No. 67)

These subdivisions must be approved by several state agencies, as well as by localities with subdivision ordinances. The DLAD reviews, and must approve, plats for compliance with surveying, layout (including mandatory public access requirements for plats abutting navigable waters), and engineering requirements. The DOT reviews, and must approve, plats abutting state highways for compliance with safety requirements. The DESS reviews, and must approve, unsewered plats for compliance with lot size, elevation, and soil percolation requirements. The DNR reviews plats within 500 feet of navigable waters for prevention of pollution to waters. It should be noted

that subdivisions creating fewer or smaller lots are frequently subject to local review and approval. This activity is included within the coastal management program because of the potential environmental impact of subdivision construction, increased generation of sewage on coastal waters, the potential increased demand for public access to coastal recreational resources, and a concern for orderly development.

It is unlawful to deposit any material or to place any structure in navigable waters without a permit. Rip rap or other similar material for protecting stream banks or lake shore from erosion shall not materially impair navigation or damage fish and game habitat. (Coastal Policy #3.5; Wis. Stats. Section 30.12(1) and 30.12(2)(b))

This activity requires a DNR permit unless the material is deposited behind a lawfully established bulkhead line. Permits are issued after DNR inspections and a finding that the activity will not "materially impair navigation or be detrimental to the public interest." There is a limited exception to the state permitting program for solely federal projects. Bulkhead lines are established by municipal ordinance and must be "in the public interest" and be approved by the DNR. Depositing materials in navigable coastal waters is included in the program because of the potential obstruction of navigation, reduction of effective flood flow capacity in streams, harmful effect on fish and game habitat, and pollution of a resource held in trust by the state.

Enlarging the course of a Great Lake or other navigable coastal water shall not injure public rights or interests, cause environmental pollution, or materially injure riparian rights. (Coastal managed use #1.c.; Wis. Stats. Section 30.19(1))

Constructing an artificial waterway within 500 feet of a Great Lake or other navigable coastal water shall not injure public rights or interests, cause environmental pollution, or materially injure riparian rights. (Coastal managed use #1.d.; Wis. Stats. Section 30.19(1)(a))

Connecting an artificial waterway to a Great Lake or other navigable coastal water shall not injure public rights or interests, cause environmental pollution, or materially injure riparian rights. (Coastal managed use #1.d.; Wis. Stats. Section 30.19(1)(b)).

Engaging in these three activities requires a permit from the DNR. The permits are issued if the DNR finds the project will not injure public rights or interests, cause environmental pollution, or materially injure riparian rights. Enlarging a navigable waterway and constructing or connecting artificial waterways are included in the program because of the potential to destroy fish and game habitat, affect navigation, and alter the quality of a resource for which the state is a trustee.

No person may throw or deposit any refuse or solid wastes, including stone, sand, slabs, decayed wood, in the waters of the state. Also any substance deleterious to fish and aquatic life can only be deposited in accordance with plans approved by the DNR. (Coastal managed use #1.1; Wis. Stats. Section 29.29(3)).

State law makes it unlawful to place any refuse or solid wastes in the waters of the states. Also, any substance deleterious to fish or aquatic life can only be deposited in accordance with plans approved by the DNR. This activity is subject to the state management program because of detrimental effects on fish and game habitat, effect on the suitability of a public resource for recreational purposes, and alteration of the quality of a resource held in trust by the state.

Grading or removing top soil which disturbs 10,000 square feet or more of the banks of the Great Lakes or other navigable coastal water shall not injure public rights or interests, cause environmental pollution, or materially injure public rights. (Coastal managed use #2.a; Wis. Stats. Sections 30.19(1)(c) and 144.30 (9)).

This activity requires a permit from the DNR. Permits are issued if the project does not injure public rights or interests, cause environmental pollution, or materially injure public rights. Removing top soil or grading is included in the management program because of the potential detrimental impact of this activity on fish and game habitat, access to a public resource, and quality of coastal waters.

Largely through the efforts of the Coastal Management Program, there has been a growing realization that too many institutional gaps and erosion strategy inconsistencies still exist in Wisconsin, e.g. incorporated areas are not covered by shoreland zoning although many municipalities have ordinances which are the functional equivalent, several planning and resource management laws are not fully sensitive to erosion issues, traditional reliance on structural devices has limited the options considered and limited financial resources and technical assistance have lead to an uneven pattern of enforcement.

While few changes have been directly sought to date, a major thrust is the fall 1978-winter 1979 consideration of the Wisconsin Erosion Plan. This document will serve as the driving force for Wisconsin's new action framework. Over the next two years the Wisconsin Coastal Management Council will implement the strategies adopted by endorsing, advocating and coordinating the needed series of refinements and adjustments to state policies and authorities. Policy issues include beach nourishment, lake bed grants and nonstructural alternatives. Technical inclusions in the shoreland zoning provisions and other law will facilitate adoption of local damage reduction programs along the Great Lakes shoreline.

Heavy emphasis will be given to preventive, not structural, approaches to damage reduction. New sources of financial and technical assistance will be sought. To help ensure that all revisions and adjustments made by both local and state units of government are compatible and consistent, a series of guidelines and principles for damage reduction is included in the state Erosion Plan. Figure 3 contains the list of principles and guidelines being considered.

In Wisconsin, local governments have traditionally been responsible for most land use decision-making along the Great Lakes shoreline. The state's role has been generally limited to providing minimum standards and special requirements for issues dealing with environmental quality, resource management and uses of land which are of statewide significance including flood plains, shoreland areas, energy facility sites, major recreational values, and navigational obstructions. Any efforts aimed at refining or adjusting Wisconsin's institutional framework on shore erosion must be sensitive to this state/local partnership.

In addition, over the coming years a parallel series of actions will be pursued at the local level. Foremost among these is adoption of damage reduction programs at the community, county and/or regional levels. The high priority given damage reduction and use of the erosion guidelines and principles will lead to more consistent and effective actions along reaches. The WCMP has identified a process by which local governments and groups of property owners by reach can prepare, implement and refine a damage reduction program. A flow diagram of the suggested process is contained in Figure 4.

The WCMP will assist local and state agencies to identify hazard areas and develop or implement management programs for them through the designation of geographic areas of management concern (GAMCs). Wisconsin will continue to redefine its positions with regard to the numerous aspects of the shore erosion issue. The WCMP has lead this effort with public education and research on the dangers associated with these hazards. The WCMP has provided technical and lay-oriented analyses and recommendations for structural and nonstructural alternatives to alleviate erosion impacts. Additional efforts to develop and adopt damage reduction programs by reach will provide protection to erosion hazard areas.

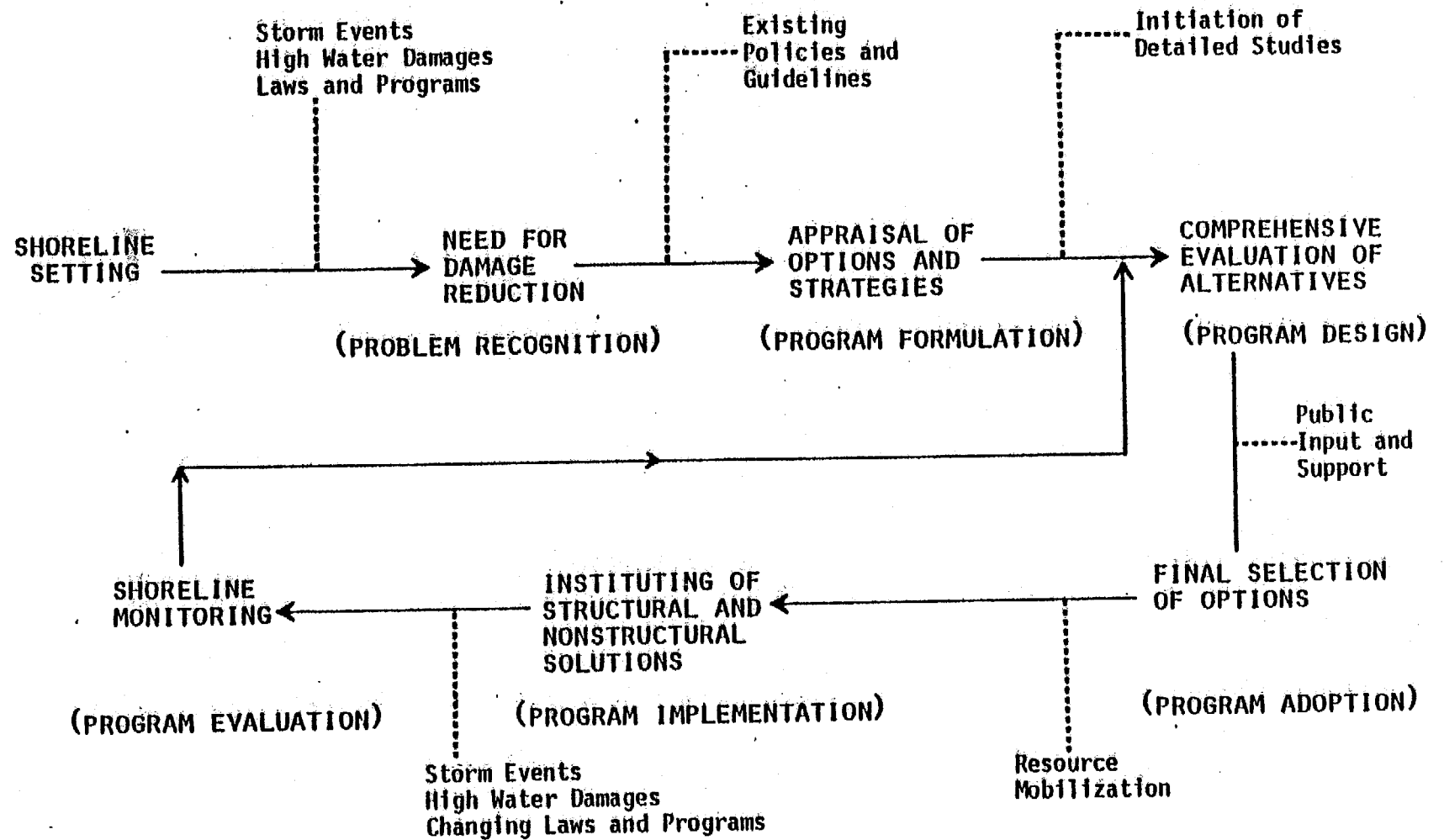
Figure 3. Principles and Guidelines for the Development of Shore Erosion Damage Reduction Programs in Wisconsin

1. Shore erosion is a complex, natural process which is difficult, if not impossible, to totally arrest.
2. The planning and implementation of long term damage reduction solutions must begin prior to the presence of high water and emergency periods. Erosion hazards and damages cannot be efficiently and effectively eliminated during these periods.
3. Shore erosion damages and hazards can be more effectively and efficiently reduced with cooperative and comprehensive planning by geologic reach between local governments, state agencies, and coastal property owners.
4. Before initiating protective actions along the Great Lakes shoreline, the causes of erosion must be carefully identified, and controlled, in the beach, toe, bluff, and upland zones.
5. Structural solutions must be cautiously used and placed since many are not only costly and short-lived but, they can also create adverse impacts upon neighboring properties.
6. Land management or nonstructural approaches to shore erosion-related problems offer a viable and effective means for reducing damages and hazards over a long period of time. Greater priority must be given to these approaches in Wisconsin.
7. The value and use of a site and its buildings, both existing and projected, should be key determinants in identifying appropriate types of solutions, and levels of public and private investment.
8. Hazard zones or districts should be precisely identified and incorporated into land use plans and ordinances along Wisconsin's Great Lakes shoreline. Along undeveloped portions of the shoreline, every attempt should be made to avoid the placement of buildings and facilities in these zones or districts.
9. All individuals, agencies, and governments acquiring an interest in land along the shoreline should be cognizant of erosion hazards and any special siting requirements in advance of final transactions.
10. Where public funds are utilized to reduce damages or save coastal resources on private property, the public benefits should be commensurate with the costs.
11. The multiple-use potentials of structural and nonstructural solutions should be utilized in the design and implementation of damage reduction programs wherever possible. Shore damage reduction is compatible with public access, recreational opportunities, conservation, preservation, and aesthetics.
12. Shore erosion damage reduction programs should be prepared, implemented, and enforced by those governments and agencies legally responsible for shoreline planning and management. Supportive programs and efforts should seek to provide direct information, assistance, and resources to these agencies and governments.

Source: A Shore Erosion Plan for Wisconsin: Appraisal of Options and Strategies.

Figure 4

GENERALIZED PLANNING PROCESS FOR DAMAGE REDUCTION PROGRAMS



Source: A Shore Erosion Plan for Wisconsin: Appraisal of Options and Strategies

D. Assessment of technical and financial assistance sources.

If state and local capabilities to address the issue of shore erosion in Wisconsin are to be fully developed, the channels for technical and financial aid must be identified, and their accessibility insured. Wisconsin's shore erosion/mitigation planning efforts include attention to this aspect of shoreland management. Tables 2 and 3 summarize the federal and state programs which currently provide, or potentially could provide, assistance to Wisconsin governments and private citizens in their shore damage reduction activities. Most shore erosion-related support emphasizes the need for planning. Existing funds are clearly directed towards evaluating shore erosion problem areas and initiating nonstructural measures of hazard mitigation and resource preservation. Financing available for structural solutions or as an avenue for compensation is extremely limited.

The Coastal Management Program represents a likely source of assistance to those Wisconsin communities interested in shore erosion damage reduction. Besides channeling its monies towards an expansion of the state's own shoreline information base, the Program is also funding shore erosion-related projects of coastal communities, counties, and regional bodies. That local policy development, plan design, and program implementation have become a major CMP focus is evidenced by the following list of future activities, classified under Coastal Issue #3, Coastal Erosion and Flood Hazard Areas:

	Title of 306 Project Proposal	Sponsor	Subject County(ies)
1.	Erosion Control Study Design	Racine County/ Town Caledonia	Racine
2.	Recreation Activity Management Study	Racine County/ Town Caledonia	Racine
3.	Ecological Study	Racine County/ Town Caledonia	Racine
4.	Lake Access Road Feasibility Study	Racine County/ Town Caledonia	Racine
5.	Duck Creek Flood Plain Management	Oneida Tribal Reservation	Brown
6.	Coastal Topographic Mapping	Town of Suamico	Brown
7.	Lake Superior Shoreland Geotechnical Study	Wisconsin Geological and Natural History Survey	Lake Superior Counties
8.	Great Lakes Shore Erosion Information and Assistance Program	Wisconsin Geological and Natural History Survey	Statewide
9.	Shore Erosion Policy Study for Local and County Governments	Wisconsin Geological and Natural History Survey	Statewide

Table 2. Shore Damage Reduction: Primary Sources of Assistance.

Federal or State-Sponsored Program.	Sponsoring Agency	Program Target				Program Scope		Program Contact
		State Govt.	County Govt.	Local Govt.	Private Person	Technical Assistance	Financial Assistance	
Beach Erosion Control	U.S. Army Corps of Engineers	X	X	X	X	X	X	Corps District Office: Chicago-Lake Michigan St. Paul-Lake Superior
Hurricane, Tidal and Flood Protection.	Same as above.	X	X	X	X	X	X	Same as above.
Correction of Federal Navi- gation Project- Induced Shore Damage	Same as above.	X	X	X	X	X	X	Same as above.
Resources Conservation.	Soil Conservation Service, U.S. Dept. of Agri- culture.		X	X	X	X		Soil and Water Conservation District Office.
Agricultural Conservation.	Agricultural Stabilization and Conser- vation Service USDA.				X	X	X	ASC Committee; or Soil and Water Con- servation District Office.
Coastal Management Program	Wisconsin Coastal Management Council	X	X	X		X	X	T.A.: WI Geological and Natural History Survey. F.A.: Regional Planning Commission; Citizens' Advisory Committee; or Office of State Planning and Energy.

Table 3. Shore Damage Reduction: Secondary Sources of Assistance.

Federal or State-Sponsored Programs	Sponsoring Agency	Program Target				Program Scope		Program Contact
		State Govt.	County Govt.	Local Govt.	Private Person	Technical Assistance	Financial Assistance	
Resource Conser- vation and De- velopment Pro- ject Activity	Soil Conservation Service, USDA		X	X	X		X	Soil and Water Conservation District Office
Highway Improvement.	Wisconsin Dept. of Transportation		X	X		X	X	Highway District Office.
Disaster Loan Assistance.	Small Business Administration.				X		X	Small Business Adminis- tration Regional Office.
Scientific Areas Preser- vation.	Wisconsin Dept. of Natural Resources.	X	X	X	X	X		Scientific Areas Coordinator, Wisconsin Department of Natural Resources.
Outdoor Re- sources Action Plan (ORAP).	Same as Above.		X	X			X	Wisconsin Department of Natural Resources District Office-Recreational Aid Specialist.
Land and Water Conservation (LAWCON).	U.S. Dept. of Interior.	X	X	X			X	Same as above.
Community Development (701).	U.S. Dept. of Housing & Urban Development		X	X			X	Regional Planning Commission; or, Wisconsin Department of Local Affairs and Development.
Water Quality Control (208).	U.S. Environ- mental Protec- tion Agency.	X	X	X		X	X	Wisconsin DNR.
Technical Assistance Grants.	Upper Great Lakes Regional Commission.	X	X	X			X	Regional Planning Commission; or UGLRC headquarters.

Wisconsin Coastal Management funds are distributed according to the priorities which have emerged from the process of designating geographic areas of management concern. Itself a management technique, the GAMC procedure has singled out for special consideration, "Hazard areas, which are those areas prone to severe erosion and/or flooding that may impose danger to public use or immediate or future substantial public costs."¹¹ Erosion control, hazard mitigation, and resource conservation policies for such areas are guided by a distinction between high and low priority shoreland uses:

"The highest use priority in these areas would be assigned to those activities that do not impose immediate or future substantial costs due to geologic, soil, or flood conditions. Any development should be so constructed as to avoid creating new hazards or increasing existing hazards. Uses of the lowest priority include those activities that are non-water dependent or non-water enhanced, create new or increase existing hazards and result in irretrievable losses of coastal resources."¹²

Application of the GAMC process to Wisconsin shore erosion management has served to provide coastal communities with additional standards for evaluating their shore damage reduction alternatives. It also fulfills Federal Requirement #3; "a method for designation of areas for erosion control, mitigation, and/or restoration as areas of particular concern or areas for preservation/restoration." And, together with current attention towards assessing existing and potential technical and financial assistance sources, it demonstrates Wisconsin's partial compliance with Federal Requirement #5, "an identification of legal authorities, funding programs and other techniques that can be used to meet management needs."

Appendices C and D:

- * Lake Bed Grants. Great Lakes. 1976
- * Feasibility of Compensation for Man-Induced Shore Erosion. 1978.
- * A Shore Erosion Plan For Wisconsin: Appraisal of Options and Strategies. 1978.

E. Coordination of local, regional, and state shore damage mitigation policies and programs.

The benefits to be gained by coordinating shore damage reduction activities have become clear as research continues to point up the system-like interactions of coastal processes and landforms. Although the concerns of each shore property owner, whether private or public, are usually site-specific in nature, if efforts to mitigate damage and/or reduce erosion are to be efficient and effective, their compatibility with one another must be insured. A primary objective of Wisconsin's shore erosion/mitigation planning process is to accomplish such compatibility.

Future planning emphasis, therefore, will be given to clarifying and coordinating agency and government responsibilities vis-a-vis existing and proposed shore damage reduction efforts in Wisconsin. Thus far, state agencies, together with the U.S. Army Corps of Engineers, have performed the bulk of coastal research and regulatory activities. Other agencies (i.e., Soil and Water Conservation Districts and the U.S. Soil Conservation Service) have developed additional shore erosion information and made it available to interested parties, while local governments have enforced their shoreland-related zoning ordinances to varying degrees.

Assessment of shoreline conditions, evaluation of existing remedial and preventive procedures, and refinement of pertinent regulatory policies have already been highlighted as ongoing elements in Wisconsin's shore erosion/mitigation planning process. The first element will involve primarily those state agencies currently active in coastal data-gathering and analysis: the Wisconsin Geological and Natural History Survey, the Wisconsin Department of Natural Resources, and the Sea Grant College Program, Geology Department, and Engineering Department of the University of Wisconsin. The latter elements will require leadership from the Coastal Management Council and implementation support from all its represented and cooperating agencies and governments: the Wisconsin Departments of Natural Resources, Transportation and Business Development, the Public Service Commission, the regional planning commissions, and the local public officials, to name a few.

Besides these three areas of future planning focus, Wisconsin will consider a fourth: the development of additional preventive—or incentive—policies and techniques which can serve to manage further the state's progress towards its shore damage reduction goal. Again, agencies and governments at all levels will be involved, whether the particular incentive program pertains to the establishment of erosion hazard warning systems or performance standards for erosion hazard districts. These programs will be targeted towards encouraging coastal localities to strengthen their own policies and implementation tools with regard to shore erosion.

In light of such anticipated activity, the need to integrate the various shore damage reduction efforts into a comprehensive strategy becomes even more apparent. Attention to this need will now dominate shore erosion/mitigation planning in Wisconsin. To enhance the opportunities for coordination, evaluation, and refinement of its shore damage reduction purposes and actions, Wisconsin will be relying especially upon the GAMC process as a screening and funding mechanism, and the Coastal Management Council as an advisory body alert to program weaknesses and needs for modification. In addition, the Geological Survey's technical assistance activities will certainly strengthen the lines of communication between federal, state, regional, and local agencies and governments and develop further the program implementation capabilities of all parties and interests involved.

Such an agenda documents well the extent to which Wisconsin has addressed Federal Requirement #5, "an identification of legal authorities, funding programs and other techniques that can be used to meet management needs." This shore damage reduction planning prospectus also demonstrates consistency with overall objectives of the Wisconsin Coastal Management Program. In particular, Program goals of making state regulatory and management policies more effective, coordinating them with local planning strategies, and strengthening local government coastal management capabilities are proving directly applicable to the shore erosion/ mitigation planning process.

Appendix E:

- * A Shore Erosion Plan for Wisconsin: Appraisal of Options and Strategies. 1978.

WISCONSIN'S COMPLIANCE, IN SUMMARY.

Over the past three years, shore erosion/mitigation planning activities in Wisconsin have been coordinated through its Coastal Management Program. The Program has developed a process for addressing coastal erosion-related problems, identifying feasible solutions, and implementing appropriate shore damage reduction plans. The process can be summarized according to its five principal components. Research, analysis, and administrative activities of each are preparing the coastal community to deal effectively with its eroding Great Lakes shoreline. They therefore serve as general evidence of Wisconsin's response to Section 305(b)(9) guidelines, issued in the Coastal Zone Management Act Amendments of 1976.

Those intervals in Wisconsin's shore erosion/mitigation planning process which demonstrate compliance with the five federal requirements are specified in Table 4. During an initial period of shoreline data gathering and analysis, the state has learned much about the extent and nature of coastal erosion along its Lake Michigan and Lake Superior shores. Such projects as geotechnical field study, shore damage estimation, recession rate measurement, and critical reach determination represent a methodology which has been developed in order to assess the effects of shore erosion in an ongoing fashion (Federal Requirement #1). Investigations into the types and costs of various structural and nonstructural options, including compensation avenues, have provided some answers to the question of what can and cannot be done to reduce shore erosion damages. Although procedures for managing erosion effects have been identified (FR #4), their application to the Wisconsin shoreline rests upon the decision making process used and subsequent actions taken by those agencies, governments, and citizens involved in the shore damage reduction effort. A framework for such actions has been proposed, based primarily upon the application of existing state and local shoreland policies (FR #2) and the need for continuous refinement of programs as new shoreline information becomes available and current policies and guidelines are revised.

Wisconsin's set of shore erosion management tools is being expanded to serve better the program implementation and evaluation needs at all jurisdictional levels. Currently, the GAMC process is providing a mechanism for channeling Coastal Management funds to shoreline stretches which have been designated as erosion hazard areas and earmarked for an appropriate hazard mitigation strategy (FR #3). At the same time, other sources of technical assistance, financial support and relief, and shore damage reduction incentives are being investigated for their applicability to the coastal area (FR #5).

Coordination and monitoring of the wide range of shore erosion/mitigation planning efforts in Wisconsin represent a future focus for the Coastal Management Council and the staff (Great Lakes shore erosion information and assistance program) of the Geological and Natural History Survey in particular (FR #5). In fact, however, all those decision making bodies, research teams, technical committees, and private individuals involved in addressing the shore erosion issue are enhancing the state's overall ability to develop and maintain a high level of efficiency and effectiveness in accomplishing its shore damage reduction objectives.

Table 4WISCONSIN'S COMPLIANCE WITH FEDERAL GUIDELINES: A SUMMARY

The following table relates the five specific federal requirements to the Wisconsin shore erosion/mitigation planning process. The planning component(s) which addresses each requirement is identified.

<u>FEDERAL REQUIREMENTS</u>	<u>COMPONENTS OF PLANNING PROCESS</u>
#1 - A method for assessing the effects of shore erosion.	A. Shoreline data gathering and analysis.
#2 - Articulation of State policies.	C. Development of a framework for action.
#3 - A method for designation of areas for erosion control, mitigation and/or restoration.	D. Assessment of technical and financial assistance sources. also E. Coordination of local, regional, and state shore damage mitigation policies and programs.
#4 - Procedures for managing erosion effects.	B. Investigation of structural and nonstructural alternatives.
#5 - An identification of legal authorities, funding programs, and other management techniques.	D. (See above) also E. (See above)

FOOTNOTES

1. The U.S. Army Corps of Engineers has extensively surveyed Wisconsin's coastal counties in order to estimate the dollar value of damages and losses suffered during each high water period. Results of the first survey were reported in Property Damage on the Great Lakes Resulting from Changes in Lake Levels (1952). The more recent figures, obtained in cooperation with the Wisconsin Department of Natural Resources, will appear in the forthcoming Great Lakes Shoreline Damage Survey.
2. At public meetings and in public perceptions polls, the Wisconsin Coastal Management Program staff have consistently heard or seen shore erosion ranked as the #1 or #2 issue amongst shoreland residents and public officials. As recently as 1976, results of a widely administered coastal citizens' questionnaire demonstrated shore erosion's continuing high priority as a coastal concern.
3. The Committee's membership has included:
 - 1) S. Born, University of Wisconsin - Madison; also, Office of State Planning and Energy.
 - 2) T. Edil, University of Wisconsin - Madison.
 - 3) G. Hadden, Sea Grant Advisory Services.
 - 4) T. Lauf, Department of Natural Resources.
 - 5) D. Mickelson, University of Wisconsin - Madison.
 - 6) A. Miller, Office of State Planning and Energy.
 - 7) M. Ostrom, Wisconsin Geological and Natural History Survey.
 - 8) G. Pirie, University of Wisconsin - Milwaukee.
 - 9) D. Thomas, Office of State Planning and Energy.
 - 10) P. Tychsen, University of Wisconsin - Superior.

Staff coordinator for the Shore Erosion Study is Roger Springman, Wisconsin Geological and Natural History Survey.

4. Up until 1975, Wisconsin was relying almost exclusively, for its shoreline information, upon the earlier research of such federal and regional agencies as the U.S. Army Corps of Engineers, the Great Lakes Basin Commission, the International Joint Commission, and the International Great Lakes Levels Board.

5. Short-term recession rates along Lake Superior are currently being calculated. In general, Wisconsin's shore erosion planning efforts have, to date, focused upon the highly developed stretches of Lake Michigan's coast, where shore erosion poses a more severe threat to existing land uses.
6. See Great Lakes Shoreline Damage Survey: Brown, Douglas and Racine Counties, Wisconsin. Appendix II. 1976.
7. The "life" of a structural solution may be considered temporary if its effect lasts less than 5 years; intermediate, if its effect is observable for at least 5 years, but not longer than 25 years; and long-term, if its effect continues beyond 25 years.
8. Laws #1 and #3 are excerpted from State of Wisconsin Coastal Management Program and Final Environmental Impact Statement (Madison, 1978), p. 114.
9. This specific policy should be added to those currently listed under "Coastal Issue #3, Coastal Erosion and Flood Hazard Areas" of the State of Wisconsin Coastal Management Program and Final Environmental Impact Statement document.
10. This general shore erosion policy statement is consistent with that reported in the Program Document, p. 113.
11. Ibid, p. 162.
12. Ibid, p. 162.

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AMENDMENTS TO THE
STATE OF WISCONSIN
COASTAL MANAGEMENT PROGRAM
AND FINAL ENVIRONMENTAL IMPACT STATEMENT

Wisconsin Coastal Management Council

In addition to the three new planning elements required by the 1976 Amendments, the following pages list specific additions or amendments to the State of Wisconsin Coastal Management Program and Final Environmental Impact Statement. Such amendments must comply with the procedures of Section 306(g) of the Coastal Zone Management Act as amended before they are formally approved by the Assistant Administrator for Coastal Zone Management, U.S. Department of Commerce.

Amendment items are listed in the order in which they will be inserted into the Program Document. Additions are underlined and deletions are typed and marked out with slashes. Tables in the Program Document which provided cross-referencing of statutes, administrative code and other legal citations are not included here, but will be accomplished after the amendments are formally approved. Other refinements may be submitted to the Assistant Administrator by the Wisconsin Coastal Management Council.

Amendment items #2,3,4,5,6,13,15,16,17 and 18 are the result of action taken by the 1977-78 Biennial Session of the Wisconsin State Legislature. These items represent further clarification of state policy within the seven coastal issues of the adopted Wisconsin Coastal Management Program. Amendment item #12 is an additional listing of an existing policy.

Amendment items #1,7,8,9,10,11 and 14 are the result of action taken by the Natural Resources Board and published in the Wisconsin Administrative Code. These items represent further clarification of state policy and regulations on public access and wetlands.

Amendment item #19 is the result of action taken by the Wisconsin Coastal Management Council on May 10, 1978. The modification refers to Council voting procedures on funding decisions.

Amendment items #20,21, and 22 are the result of Wisconsin compliance with 305(b)(8), Energy Facility Planning. This amendment to the Funding Allocation Procedures of the Wisconsin Coastal Management Program is further explained on pages 137-145 of this report.

A refinement, #23,24, and 25, are also listed at the request of the Nuclear Regulatory Commission and the U.S. Department of Agriculture, Forest Service.

Amendment Item No.	Page No.	Amendment to the <u>State of Wisconsin Coastal Management Program and Final Environmental Impact Statement</u>
		Chapter I. Coastal Issues and Policies
		I. COASTAL WATER AND AIR QUALITY
#1	105	1.0 The state's policy on coastal water quality is . . . to protect public health, safeguard aquatic life and scenic and ecological values <u>including wetlands</u> ; . . .
#2	106	1.5.1 <u>The state shall provide financial and technical assistance to abate point and non-point source water pollution. (Wis. Stats. Section 144.24 and .25).</u>
#3	106	1.7 Phosphorus removal from sewage . . . tributaries <u>and the sale of cleaning agents and water conditioners which contain more than 8.7% phosphorus by weight is prohibited. (See managed use #1 h, Wis. Stats. Section 100.28, and Wis. Admin. Code NR 102.04).</u>
#4	106	1.8 <u>Waste treatment facility plans shall be reviewed and may be disapproved if they are not in conformance with any existing approved areawide waste treatment management plans prepared pursuant to P.L. 92-500 as amended. Sewer extensions shall be allowed . . . exists. (See managed use #2 d, Wis. Stats. Section 144.04, and Wis. Admin. Code NR 110.05).</u>
#5	106	1.9.1 <u>Treatment, storage and disposal of hazardous substances and solid waste shall be regulated and restricted. Waste generators shall contribute to a waste management fund to guarantee long-term care of and environmental repairs to solid and hazardous waste disposal sites and to make such sites suitable for other uses. (See Resource Conservation and Recovery Act of 1976, P.L. 94-580 and Wis. Stats. Section 144.41 ff).</u>
#6	106	1.13 Lots not served by public sewer shall have area and width restrictions. <u>No building permit shall be approved without septic tank permit approval if such a permit is necessary. (See . . . Wis. Stats. Chapter 236 and Section 66.036, . . .).</u>
		II. COASTAL NATURAL AREAS, WILDLIFE HABITAT AND FISHERIES
#7	109	2.0.a. Designating and managing special areas . . . streams, <u>wetlands, . . .</u>
#8	109	2.1 State scientific areas shall be designated for . . . preservation of . . . communities, <u>including wetlands, . . . (See . . . Wis. Admin. Code NR 45.23 and NR 1.95).</u>
#9	110	2.6 State wildlife areas shall be managed . . . the primary objectives of wildlife habitat <u>and</u> public hunting

and wetlands protection. (See . . . and Wis. Admin. Code NR 1.95).

#10 110 2.9 State fish management areas shall be designated and managed to . . . foster and promote the preservation of required habitat for all species including wetlands, . . . (See . . . Wis. Admin. Code NR 1.01 and NR 1.95).

#11 111 2.13.1 The Department of Natural Resources shall preserve and protect wetlands under its management and control. The Department of Natural Resources shall use its regulatory authority to minimize adverse changes in the quality or quantity of the flow of waters that nourish wetlands, to protect wetlands from all environmentally incompatible uses, activities and substances, and restore wetlands which were unlawfully altered. (Wis. Admin. Code NR 1.95).

III. COASTAL EROSION AND FLOOD HAZARD AREAS

#12 114- 3.5 It is unlawful to deposit any material or to place any structure in navigable waters without a permit. Rip rap . . . habitat. (See . . . Wis. Stats. Section 30.12(1) and 30.12(2)(b)).

IV. COMMUNITY DEVELOPMENT

#13 117 4.0.g. Providing assistance programs for recreational boating facilities and boating safety to remedy the problems of recreational use of the waters.

#14 118 4.8 Public access . . . approval. Providing public access to waters by the Department of Natural Resources is a variable requirement based on the quality of the resource, the space available and the levels of use experienced, respecting private rights and developments. (See . . . and Wis. Admin. Code NR 1.90, 1.91 and 1.92).

#15 118 4.10 Local communities shall be encouraged . . . The state shall provide technical and financial assistance to municipalities for the development of recreational boating facilities. (See . . . and Wis. Stats. Section 23.30 and 30.92).

V. ECONOMIC DEVELOPMENT

#16 121 5.1 The state shall promote business and industrial development . . . and shall authorize the establishment of foreign trade zones by government bodies and private corporations. (See . . . and Wis. Stats. Section 560.03 and, .23 and 182.50).

Chapter II. Implementing a Coastal Management Program in Wisconsin

B. Managing Key Coastal Resources and Development Activities

- #17 180 B.2.C. item 2.i. Disturbing Bridges.
The second paragraph could be written as follows:

Bridges over navigable waters are also subject to regulation by the DNR to protect human life and health, and minimize property damage and economic loss. Navigational clearance of municipal highway bridges is subject to standards promulgated by the DOT.

(The above change reflects the concept inherent in Chapter 190, Wis. Laws of 1977, effective 12/8/77.)

- #18 180 B.2.C. item 2.j. Abandoning Any Rail Line or Service.

Delete the first three sentences in this paragraph and replace them with:

This activity is under the sole jurisdiction of the federal Interstate Commerce Commission. The State Department of Transportation, in coordination with the State Transportation Commission, plays an active role in these decisions, appearing and testifying before the ICC.

(Retain the rest of the paragraph as is. This amendment is suggested to incorporate the state legislative changes that have taken place in the last year, including (1) the creation of a Transportation Commission and the transferring of transportation related responsibilities from the Public Service Commission to the new Transportation Commission, and (2) the increased responsibilities of the Department of Transportation, e.g., first right of refusal on abandoned rail lines.)

C. Organization for Implementation of the Coastal Management Program

3. A new Wisconsin Coastal Management Council

- #19 204 First paragraph, delete last sentence, lines 4-7.
~~Also, it should be noted that state agencies as well as all other Council members, will not be allowed to vote on funding decisions that directly affect their agency or interest.~~

D. Program Funding

2. Funding Sources for a Coastal Management Program
-- Coastal Energy Impact Program (Section 308)

- 218 Delete second sentence: "The provision . . . resource."
Insert in its place:

Five types of financial assistance are provided under
Section 308(b)(c)(d):

- (1) Planning grants for the consequences of energy facilities,
- (2) Loans for new or improved public facilities and services required as a result of coastal energy activities,
- (3) Grants to reduce any unavoidable loss of valuable environmental or recreational resource,
- (4) Outer Continental Shelf (OCS) development grants, and;
- (5) Repayment assistance to coastal states and local governments experiencing difficulties meeting credit obligations because the energy activity did not provide the expected revenue.

Planning grants, the only type of CEIP financial assistance available to Wisconsin, may be applied to either coastal energy activities or facilities.

- 3. Eligible Funded Activities and Recipients
 - a. To improve the implementation . . . of existing . . . policies . . .
- (3) Coastal energy impacts--

- #21 220 Delete whole paragraph: "financial assistance is . . . energy activity."
Insert:

Section 308(c) planning grants are designed for the study and planning of consequences relating to new or expanded facilities, such as:

- (a) planning for economic, social, or environmental consequences of new or expanded energy facilities;
- (b) analyzing government or private industry siting policies;
- (c) Devising strategies for the public purchase of land or for land-use controls upon or near which energy development is to take place;

- (d) devising methods of protecting recreational or environmental resources;
- (e) conducting studies for maintaining or improving public safety threatened by the construction or operation of energy facilities;
- (f) conducting analyses required for state or local regulatory decisions related to energy facilities;
- (g) performing cost/benefit analyses comparing the consequences of alternative energy facility types or sites;
- (h) devising strategies for recovering compensation for any adverse effects caused by an energy facility;
- (i) forecasting employment, population, public facility and public service needs and costs, and tax and user fee revenues;
- (j) planning for public facilities needed as a result of the energy activities;
- (k) study of and planning for the secondary consequences of alternative types and sites of public facilities needed as a result of the energy activities;
- (l) study of and planning for the consequences of the phasing out of energy facilities; and
- (m) carrying out projects necessary to administer assistance under Section 308 (NOAA Regulations, Section 931.33, 43 FR 7554 - 7555)

4. Considerations in Project Funding

#22

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Add an additional paragraph at the end of the section, mid-page.

Major criteria for selection of CEIP projects are:

- a) coastal energy activity/facility determination (as defined in NOAA Regulations Section 931.13 and 931.19, 43 FR 7551-7553)
- b) size and vulnerability of the area*
- c) appropriate timing of the proposal to address the impacts of the facility (urgency or immediacy of need)*
- d) consistency with other state policies and with the Coastal Management Program*

Other criteria for CEIP project selection are:

- e) compliance with federal regulations and guidelines
- f) ability of applicant to carry out proposed study and previous energy planning involvement
- g) presence of matching funds*
- h) geographic distribution of the proposals*
- i) transferability of findings of the project*
- j) cost of project and availability of complementary funds from other state or federal sources*

*Existing guidelines from Coastal Management Program funding.

Chapter III. Federal Government Activities in the Coastal Area

- #23 231 Page 231 of the State of Wisconsin Coastal Management Program and Final Environmental Impact Statement makes reference to: "A list of federally excluded lands was reprinted in Appendix I of the Draft Impact Statement." This list inadvertently omitted the Nicolet National Forest of which a portion is in Oconto County.
- D. Federal Consistency - Licenses and Permits
- #24 241 Page 241 Paragraph D. The Department of Agriculture authorities:
- 1) 43 USC 1716 has replaced 16 USC 522 and 523.
 - 2) 16 USC 497 refers to "lease and occupancy of lands for hotels, resorts, summer homes, stores and facilities for industrial, commercial, educational or public use on US Forest Service Lands" rather than permits for construction.
- #25 242 Nuclear Regulatory Commission
- a) ~~Siting and operation of nuclear power plants.~~ Permits and licenses for the construction and operation of nuclear facilities. (State permits required).